All Cancer

Definition: Cancer is a group of more than one hundred diseases that occur when normal cells become transformed into malignant cells. Transformed cells grow and multiply without control or order. Without treatment to stop this growth, cancer cells can spread throughout the body, resulting in illness and death.
ICD -9 codes 140-208

Summary

Cancer is the second leading cause of death in Washington and the United States. In 1994, 9,904 Washington residents died of cancer (age-adjusted death rate 164 per 100,000--see Technical Note regarding age adjustment of cancer data).

One person in three will develop some type of cancer in their lifetime. In Washington this year, an estimated 25,000 people will develop cancer.

Population-wide reductions in tobacco and alcohol use, along with increases in consumption of fruit and vegetables would substantially lower the cancer death rate. Regular screening examinations can help detect some types of cancer at an early stage, when treatment is most likely to be effective.

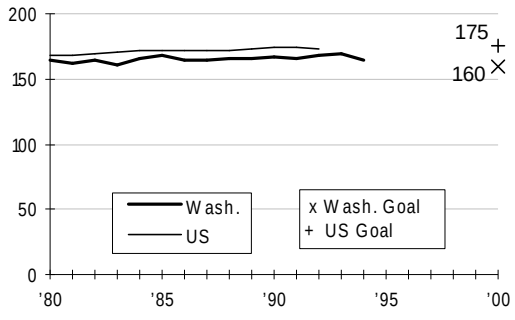
Time Trends

Age-adjusted death rates for all cancers combined have been increasing slightly for both the US and Washington. This is due for the most part to lung cancer deaths. If lung cancer mortality were excluded, cancer deaths would have declined 14% between the years 1950 and 1990.

The Washington age-adjusted mortality rates for all cancers combined for the period 1980-1992 were slightly below the national rates. The 1992 national rate was 172.5 per 100,000, compared to 168.1 in Washington.

All Cancer

Age-Adjusted (1970 standard) Death Rates
Per 100,000 Persons, with Year 2000 Goals



Year 2000 Goal

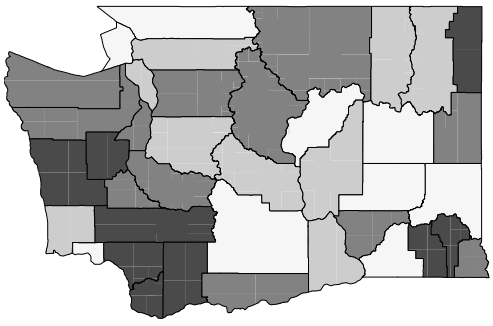
Washington's goal for the year 2000 is to reverse the rise in cancer deaths to achieve an age-adjusted rate of no more than 160 per 100,000 people. The 1994 age-adjusted mortality rate for the state was 164.0/100,000.

Geographic Variation

The map below displays average annual age-adjusted mortality due to all cancers by county for 1992-1994. Most of the highest and lowest rates are in counties with small populations and are subject to considerable year-to-year fluctuation. The counties showing the highest rates for those three years combined were Garfield, Columbia, Skamania, Grays Harbor, Mason, Lewis, Cowlitz, Pend Oreille, and Clark. The counties with the lowest rates were Douglas, Wahkiakum, Whitman, Lincoln, Adams, Walla Walla, San Juan, Whatcom, and Yakima.

All Cancer

Average Age-Adjusted Death Rates, 1992-1994



Death Rates

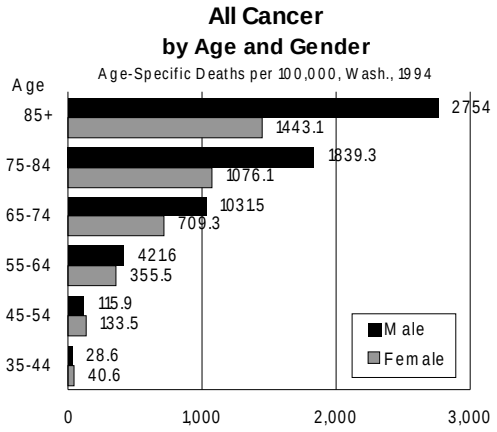
- 113 .7 to 150 .8
- 150 .9 to 167 .2
- 167 .3 to 176 .8
- 176 .9 to 215 .6

State Average: 167.3
National Rate: 172.5 (1992)

Age and Gender

Cancer is primarily a disease of adults in mid-life or older; cancer mortality increases sharply with age. However, about 8,000 children in the U.S. will develop cancer this year, and cancer is the leading disease-related cause of death in children between the ages of 1 and 14.

National data show a 16% decline in the mortality rate in persons under age 55 for the period 1973-1991. For the same time period, rates for persons aged 65 and older increased 14.6 percent in men, and 20.2% in women. Mortality rates in persons aged 55-64 increased somewhat, as well. In children, the mortality rate decreased by 42.1 percent. This is most likely due to advances in treatment for many childhood cancers.



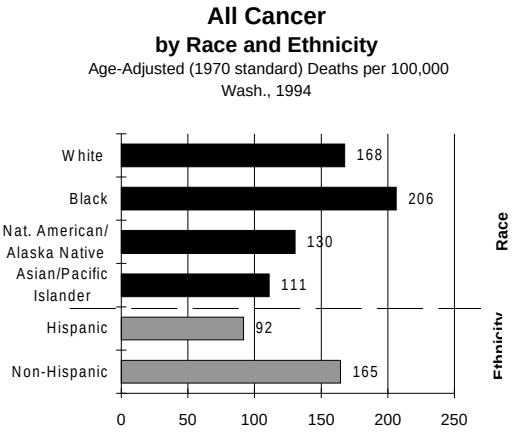
Males have higher cancer incidence and mortality rates than females. In Washington State, the 1993 incidence rate was 458.9 per 100,000 for males, and 338.3 per 100,000 for females. Nationally, the incidence rate for the period 1987-1991 was 465.7 cases per 100,000 men and 342.5 cases per 100,000 women. Men have higher incidence rates for nearly every cancer common to both sexes. Particularly striking differences in mortality between the sexes are seen in cancer of the lung, esophagus, oral cavity and bladder.

Race and Ethnicity

Overall cancer mortality in Washington is highest among African Americans.

Nationally, the mortality rate (1987-1991) for Caucasians was 169.0 per 100,000, and 226.2 per 100,000 for African Americans.

Washington state incidence data for 1993 show a rate for Caucasians of 400.9 per 100,000 and 423.9 for African Americans. The national incidence rates for the period 1987-1991 are 392.0 cases for Caucasians, and 422.1 for African Americans per 100,000 population. These rates indicate that African Americans bear a disproportionate burden of cancer, both in the development of the disease and decreased survival for those with the disease.



Other Measures of Impact and Burden

Incidence: The age-adjusted cancer incidence rate in Washington state for 1993 was 388.3 per 100,000. Nationally, the rate (1987-1991) was 390.4 per 100,000. In the US, the lifetime risk of developing cancer is approximately one in three.

Hospitalization: In 1994, 13,167 hospital admissions were recorded among Washington residents for cancer-related diagnosis or treatment, an admission rate of 247 per 100,000 persons. The number of admissions in 1994 was about 2,400 fewer than in 1990, when the rate was 318 per 100,000. This decline in admissions is primarily a result of treating more cancer patients in outpatient settings.

Years of Potential Life Lost: On average, individuals diagnosed with cancer are deprived of 15.3 years of expected life.

Quality of Life: Cancers cause morbidity through local tumor growth, spread to distant organs, and systemic effects of the disease. Malignant tumors can grow large enough at the primary site to interfere with the functions of the involved organ and compress nearby organs and structures. Cancer treatments, including surgery, radiation, hormone and chemotherapy, and immunotherapy can be debilitating and interfere with the activities of daily living. Depression and

anxiety often ensue from the diagnosis of cancer and subsequent treatment in affected individuals and their families.

Cost: Cancer-related costs account for 10 percent of the total amount spent on disease treatment in the United States. The National Cancer Institute estimates total national 1995 costs for cancer at $104 billion -- $35 billion for direct medical costs and $67 billion for the cost of lost productivity due to morbidity and mortality. Over half of the direct medical costs are for treatment of breast, lung and prostate cancers.[1]

Risk and Protective Factors

Tobacco Use. Cigarette smoking is responsible for over 85% of lung cancers. Smoking also increases the risk for other cancers of the respiratory tract and for cancers of the bladder and uterine cervix. Thirty percent of all cancer deaths can be attributed to smoking.[2] Use of chewing tobacco or snuff increases the risk of cancer of the mouth, larynx, throat, and esophagus. The American Cancer Society estimates that nationally in 1995, 170,000 lives will be lost to cancer because of tobacco use.

Nutrition and Physical Activity. Research supports an important role for nutrition in cancer prevention. Evidence indicates that a diet relatively low in fat and high in fruits, vegetables and fiber may reduce cancer risk.[3] Mounting evidence also supports the role of regular, moderate physical activity in preventing cancer, particularly cancers of the colon and rectum.

Alcohol. Oral cancer and cancers of the larynx, throat, esophagus and liver occur more frequently among heavy drinkers, especially when accompanied by smoking cigarettes or chewing tobacco. Every year, about 18,000 cancer deaths nationwide result from alcohol abuse, frequently in combination with cigarette smoking.[4]

Estrogen. Estrogen treatment to control menopausal symptoms can increase the risk of endometrial cancer. However, including progestogen in hormone replacement therapy helps to minimize this risk.

Occupational Hazards. Exposure to numerous industrial agents, including nickel, lead, chromate, asbestos and vinyl chloride, increases the risk of various cancers. The risk of lung cancer from asbestos is greatly increased when combined with cigarette smoking.

Radiation. Excessive exposure to ionizing radiation can increase cancer risk. Occupational or environmental exposure to radon gas, for example, may increase the risk of lung cancer, especially in cigarette smokers. Excessive ultraviolet radiation exposure from sunlight in childhood, particularly for light-skinned individuals, is a major risk factor for malignant melanoma of the skin.

Genetic Factors. About 15% of cancer cases are associated with inherited factors.[5] Cancer is rarely an exclusively hereditary disorder, however. "Cancer genes" do not transmit cancer itself; rather they carry an increased susceptibility to its development. Environmental, lifestyle, and other factors generally play a role in whether individuals with predisposing genetic mutations for cancer will ever manifest the disease.

High Risk Groups

Any group of people in whom the major risk factors are concentrated will tend to have higher cancer rates than the general public.

Family History of Cancer. People with a history of cancer in a close family member are sometimes at increased risk, particularly for breast cancer, where cancer in a woman's mother or sister is an indication for more intensive screening.

Lifestyle choices. Individuals who consistently make unhealthy lifestyle choices regarding smoking, alcohol abuse, and dietary intake constitute a group at increased risk for developing cancer.

The elderly. Since cancer incidence rises with age, most cases affect adults in mid-life or older.

Intervention Points, Strategies and Effectiveness

Many cancers are preventable. Researchers estimate that if everything known about the prevention of cancer could be applied, about two-thirds of cancers would not occur.[6]

All cancers caused by cigarette smoking and alcohol abuse could be prevented by avoidance of these products. Diets high in fruits, vegetables, and fiber may reduce the risk for some types of cancers, as may be true for regular participation in physical activity. In addition, routine screening for early detection of some cancers plays an important role. Other sections of this document discuss strategies to reduce risks and improve protection.

Reduction of sun exposure, particularly the avoidance of severe sunburn in children, may be an important strategy to prevent melanoma. The "Slip (on a shirt), Slop (on some sunscreen), Slap (on a hat)" campaign, developed in Australia, may prove very effective in reducing melanoma risk in susceptible individuals.[7] This campaign combines public education with policy advocacy to increase the availability of shade in public spaces.

See related sections on Tobacco Control, Alcohol/Substance Abuse, Physical Inactivity, Nutrition, Breast Cancer, Cervical Cancer, Colorectal Cancer, and Lung Cancer.

Data Sources

State Death Data: Washington Department of Health, Center for Health Statistics.

National Death Data: National Center for Health Statistics and SEER Cancer Statistics Review.

State Hospitalization Data: Comprehensive Hospital Abstract Reporting System (CHARS).

State Cancer Incidence Data: Washington Department of Health, Washington State Cancer Registry.

For More Information

Washington State Department of Health, Office of Non-Infectious Disease and Injury Prevention.

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Technical Notes

Age adjustment: Rates presented in this section are age-adjusted to the 1970 US population. The 1994 Washington State total population mortality rate for all cancers, adjusted to the 1940 US population, was 124.0/100,000. See technical appendix.

Race and ethnicity: See technical appendix.

Endnotes:

[1] American Cancer Society. Cancer Facts and Figures - 1995. The American Cancer Society, Inc., Atlanta. 1995

[2] American Cancer Society. Cancer Facts and Figures - 1995. The American Cancer Society, Inc., Atlanta. 1995

[3] Doll R, Peto R. *The Causes of Cancer. Quantitative Estimates of Avoidable Risks of Cancer in the United States Today.* Oxford Univ. Press, New York. 1981

[4] Thomas DB. Cancer. In: Last JM, Wallace RB, eds. *Maxcy-Rosenau-Last Textbook of Public Health and Preventive Medicine.* Appleton & Lange, Norwalk, Conn. 1992:811-26.

[5] Schneider K.A. Counseling About Cancer: Strategies for Genetic Counselors. K.A. Schneider c/o Dana Farber Cancer Institute

[6] Brownson RC, Reif JS, Alavanja MCR, Bal DG. Cancer. In: Brownson RC, Remington PL, Davis JR, eds. *Chronic Disease Epidemiology and Control.* American Public Health Association, Washington, D.C. 1993:137-67.

[7] Marks R. Skin cancer control in the 1990's, from slip! slop! slap! to sun smart. Australas J Dermatol. 31(1):104; 1990.